hyperoxaluria develops postoperatively in many patients, urinary calculi develop in only a small fraction of them. Gregory and associates failed to notice any significant difference in the incidence and degree of hyperoxaluria and hyperoxalemia between those in whom stones formed and those in whom they did not. Stone formers, however, showed a higher crystallization rate; also, the crystals that formed in their urine were larger. This indicates that the ultimate precipitation of oxalate crystals in patients with hyperoxaluria is determined by the presence or absence of certain yet undetermined factors.

At present, the prophylactic management of these patients includes (1) careful follow-up studies of urinary oxalate levels, (2) dietary restriction of oxalates and fats and (3) administration of oxalate-binding agents like cholestyramine or diethylaminoethanol cellulose. Calcium also binds oxalate in the gut, and most workers have found it effective in substantially reducing urinary oxalates. Gregory, however, has cautioned against the use of calcium salts based on his observation of an enhanced rate of urinary crystallization in animals given calcium orally following jejunoileal bypass operations.

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Electron Microscopy for Detecting Changes in Undescended Testes

THE TIMING OF orchiopexy for boys with cryptorchidism has gradually changed over the past half century. Originally, postpuberty had been selected, but studies of spermatogenesis then suggested that the preschool years might be optimal. Recently, electron microscopy of undescended testes has cast doubt on that recommendation as well. Under electron microscopy, the spermatogonia of both cryptorchid and control testes appear the same during the first year of life. Thereafter, however, the density of the spermatogonia is decreased in a cryptorchid testis as compared with its control. Additionally, Leydig cells in an undescended testis appear to be damaged after the second year of life, while those of control testes do not. This information suggests that the optimal age for orchiopexy should be revised downward again to the second year of life. It has been shown that orchiopexy by a skilled physician can be accomplished as effectively in boys at 1 to 2 years of age as at a later age.

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Antegrade Pyelography and Percutaneous Nephrostomy

ALTHOUGH antegrade pyelography and percutaneous nephrostomy are not new procedures, recent technical refinements have allowed their incorporation into the evaluation and treatment of patients with upper urinary tract disturbances. However, modern equipment and an experienced urologist or uroradiologist are required for their use.

Antegrade pyelography is essentially a diagnostic technique for evaluating ureteral transport and hydroureteronephrosis. Under fluoroscopic or ultrasound guidance and using local anesthesia, a special catheter is placed percutaneously into the dilated pyelocalyceal system. Urine is withdrawn for analysis, including culture and cytological studies. A contrast medium is then injected to fill out the collecting system after the patient has been repositioned for optimal delineation of the upper urinary tract. Continuous perfusion studies measuring pressure changes can be carried out in both children and adults in an attempt to distinguish true obstruction from simple dilatation of the collecting system (Whitaker test). A general anesthetic is usually given when carrying out the test in infants and children.

With percutaneous nephrostomy, a small firm catheter is left indwelling in the obstructed pyelocalyceal system for drainage of urine in conditions such as pyonephrosis or uninfected hydronephrosis. Also, patients with azotemia and other complicating factors can have rapid relief of ureteral obstruction without undergoing a general anesthetic, formal surgical nephrostomy or attempted cystoscopic manipulation and insertion of ureteral catheters. Bilateral percutaneous nephrostomy tubes can be inserted during the procedure if necessary. Recently, this technique has been modified for the manipulation and extraction of urinary tract calculi as well as for the antegrade stenting of strictures at the ureterovesical and ureterointestinal junctions. When renal function

has improved and infection is controlled, then permanent or definitive measures can be planned and carried out electively and more safely.

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Ho PC, Talner LB, Parsons CL, et al: Percutaneous nephrostomy: Experience in 107 kidneys. Urology 15:532-535, Dec 1980

Serum Markers for Detecting Testicular Tumors

RADIOIMMUNOASSAY has made possible the accurate measurement of serum α-fetoprotein (α-FP) and β-human chorionic gonadotropin (β-HCG). These serum markers are elevated in a significant number of patients having testicular tumors originating from germ cells. When used together, these markers have been found to be elevated in 70 percent to 94 percent of patients with nonseminomatous germ cell tumors, such as embryonal cell carcinoma, teratocarcinoma and choriocarcinoma. With pure seminoma, the most radiosensitive of the testicular tumors, elevation of β-HCG has been noted in 5 percent to 10 percent of cases. The source of this elevation is thought to be syncytiotrophoblastic giant cells interspersed in the seminoma. The detection of an elevated α-FP in what is thought to be pure seminoma, however, indicates the need for a further search for other tumor elements.

α-FP is a glycoprotein produced by fetal yolk sac, liver and some gastrointestinal tract cells. It is present in the human fetus and reaches low levels (less than 40 ng per ml) by 1 year of age. In addition to elevated levels in patients with testicular embryonal cell carcinoma and teratocarcinoma, α-FP elevations have been noted in patients with hepatocellular, pancreatic, gastric and colonic carcinoma as well as those with Laennec cirrhosis.

Human chorionic gonadotropin, a glycoprotein composed of an α and β chain, is normally secreted by the placenta. Germ cell tumors of the testis often contain specialized cells capable of HCG production. Earlier methods were able to detect HCG in only 20 percent to 30 percent of nonseminomatous tumors whereas a 40 percent to 60 percent detection rate is now possible for β-HCG, based on a technique using an antibody to the β chain.

Clinically, these tumor markers have aided in the preoperative evaluation of testicular masses; for example, elevated values are strong evidence of a neoplasm. While the half-life of α-FP is approximately five days and that of β-HCG is 16 hours, a waiting period of two to three weeks following orchiectomy is advised before these tests are repeated. Persistent elevation of these serum markers indicates residual disease in a patient following orchiectomy. Also, reappearance of elevated markers that had previously returned to normal levels generally indicates recurrence of the disease. The larger the tumor burden, the more likely the elevation in the level of serum markers.

Perhaps the most valuable use of these tumor markers is in detecting residual or recurring tumors in patients with nonseminomatous germ cell tumors who have had stage I (confined to the testis) or stage II (tumor present in retroperitoneal lymph nodes) disease. In addition, in patients with stage III disease (advanced metastasis), response to radiation or chemotherapy can be monitored by checking the serum levels of these marker proteins.

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Immediate Versus Delayed Endocrine Therapy for Prostatic Carcinoma

IN 1941 Huggins and Hodges reported the almost miraculous response of cases of far advanced prostatic carcinoma to treatment with diethylstilbestrol (DES). Following this report endocrine manipulation became the accepted treatment for patients with prostatic carcinoma. Treatment involved DES therapy, an orchiectomy, or both, and was started as soon as the diagnosis was made. In 1967 the Veterans Administration Cooperative Urological Research Group reported that patients with early prostatic carcinoma (stages I and II) who were given DES had a shorter survival time than those given a placebo and suggested that endocrine manipulation be withheld until the severity of symptoms necessitated relief.

Our retrospective study agrees with their conclusions. The 15-year survival rate of patients with stage I and II lesions was 24 percent (23 of 95)